and mortality adjusting for patient factors.
Results: Most patients underwent PCI at high (n=49,429, 42.6%) or very high (n=48,517, 41.9%) volume hospitals; few patients were treated at low (n=4,355, 3.8%) or medium (n=13,609, 11.7%) volume hospitals. Crude in-hospital mortality rates differed for patients treated at low and very high volume hospitals (2.82% vs. 1.41%, p<0.001), but were comparable among patients treated at medium and high volume hospitals (1.75% vs. 1.68%, p=0.56). The multivariate adjusted odds of in-hospital mortality were similar for patients treated in medium (odds ratio [OR] 0.95, 95% confidence interval [CI] 0.78-1.17), high (OR 1.00, referent), and very high volume hospitals (OR 0.96, 95% CI 0.83-1.10). Patients treated at low volume hospitals were at increased risk of mortality (OR 1.37, 95% CI 1.08-1.74).
Conclusion: Although based on administrative data, our analysis found no evidence of higher in-hospital mortality among patients undergoing PCI at medium volume hospitals (200-399 cases) compared with patients treated at hospitals with annual PCI volumes of 400-999 cases, suggesting the ACC/AHA PCI hospital volume minimum may merit reevaluation.

ORAL CONTRIBUTIONS

885 Outcomes of Acute Coronary Syndromes: Subgroups and Trends

Wednesday, April 02, 2003, 10:30 a.m.-Noon
McCormick Place, Room S404

10:30 a.m.

885-1 Patient, Hospital, Physician, and Market Correlates of One-Year Costs After Acute Myocardial Infarction in the Elderly

Lawrence Liao, M. K. Bundorf, Kevin A. Schulman, David J. Whellan, Daniel B. Mark, James G. Jollis, Duke Clinical Research Institute, Durham, NC

Background: Studies examining costs following myocardial infarction (MI) have been limited by short follow-up, small sample sizes, restricted patient populations, or failure to include hospital (H), physician (P), or market (M) characteristics. In a national sample with extensive supplemental data, we sought to identify the factors associated with costs in the year following MI.
Methods: 84,373 elderly acute MI patients (90% white, 49% female) in the Cooperative Cardiovascular Project were linked to Medicare Part A claims, AHA Hospital Surveys, the CMS directory of physician specialties, and the CMS Hospital Wage Index File. Medicare charges were converted to costs using institutional cost to charge ratios. Associations with admission episode and one-year log-transformed costs were assessed by regression analysis with robust standard errors.
Results: Mean cost was $12,956 (median $8,833) for the admission episode and $19,597 (median $13,583) at one year. Patient characteristics only accounted for 11% of the admission and one-year cost variation. Patient variables most highly associated with one-year costs included anterior MI ($1455 more), CHF ($1858 more), and COPD ($1894 more). Older age (age ≥ 80 years) was most strongly associated with lower costs ($5693 less). After adding HPM variables, the models explained 22% of admission and 17% of the one-year cost variation. After adding treatment and outcome variables, the models explained 55% of the admission and 59% of the one-year cost variation. The variables most highly associated with one-year costs were procedures including echo ($4261 more), thrombolysis ($3856 more), catheterization ($14,064 more), PCI ($8,264 more), and CABG ($24,622 more). While patient death was associated with lower admission episode costs, it was also associated with higher one-year costs.
Conclusion: In models including patient, HPM, care, and outcomes data, cardiac procedures account for the largest share of admission and one-year health care cost variation. These data indicate that strategies focusing on appropriate procedure use have the greatest potential to produce important cost savings.

10:45 a.m.

885-2 Modeling the Cost-Effectiveness of Clopidogrel in Acute Coronary Syndromes Without ST-Segment Elevation in Sweden

Peter Lindgren, Bengt Jonsson, Institute of Environmental Medicine, Karolinska Institute, Stockholm, Sweden, Stockholm School of Economics, Stockholm, Sweden

Background: The CURE trial showed a relative risk of 0.8 of suffering from stroke, myocardial infarction (MI) or cardiovascular death in patients treated with Clopidogrel + ASA compared to ASA alone. The purpose of this study was to evaluate the cost-effectiveness in terms of cost per life year gained (LYG) of this treatment in Sweden.
Methods: A Markov model with six states (at risk, first year with stroke, following years with stroke, first year with new MI, following years with new MI and death) was used. The risk of suffering stroke, MI or cardiovascular death for patients hospitalized with unstable angina was calculated based on data from the Swedish inpatient and causes of death registers using logistic and Weibull regressions. Mortality was estimated using data from the same sources. Intervention was studied for a period of 12 months (maximum follow-up in the trial), and the intervention costs and effect was annualized based on the 9-month average follow-up in the CURE trial. Costs (direct, indirect and costs in added years of life) due to different events were taken from published sources, while cost for the initial hospitalization was estimated based on data from the CURE trial. In the base-case, simulations were performed for a 64-year old cohort consisting of 61.3 % men (similar to that of the trial). LYG was used as the measure of effectiveness. Cost and effects were discounted at 3%.
Results: The model predicts an incremental survival of 0.12 years and incremental direct costs of 149 US$ per patient. Including indirect costs and costs in added years of life the incremental cost is 1,959 US$. The treatment is cost-saving if costs in added years of life are excluded. The incremental cost-effectiveness ratio is thus 1,290 US$/LYG or 15,199 US$/LYG depending on perspective. Using the upper bound of the 95% CI of the relative risk in the trial, the ratios are 4,942 US$/LYG and 20,382 US$/LYG. Older patients show more favorable ratios than younger ones when considering direct costs only, while the opposite is true when all costs are included.
Conclusion: Clopidogrel + ASA compared to ASA alone in this indication shows a favorable cost-effectiveness ratio compared with other cardiovascular therapies.

11:00 a.m.

885-3 Effect of Gender According to Age on In-Hospital Mortality in Patients With Acute Myocardial Infarction in the ACC-National Cardiovascular Data Registry

Sean C. Beinart, Viola Vaccarino, Jerome L. Abramson, Kathleen Hewitt, William S. Weintraub, on behalf of the American College of Cardiology National Cardiovascular Data Registry, Emory University, Atlanta, GA

Background: Past studies evaluating the effect of gender on percutaneous coronary intervention (PCI) outcomes in patients with AMI have shown conflicting results. It has also been suggested that younger, but not older, women represent a high risk group for coronary interventions.
Objective: To determine whether women have a greater risk for in-hospital mortality in younger, but not in older patients.
Methods: The study population included 59,792 cases with AMI who underwent PCI in 223 hospitals participating in the ACC-NCDR from 1/1/98 to 9/30/2001. Logistic regression models were fit using over 30 demographic, clinical, and angiographic variables to assess the effect of female gender on risk adjusted in-hospital mortality. The interaction between age in 10-year increments and gender was assessed with the Breslow-Day test (unadjusted) and likelihood ratio test (adjusted).
Results: 19,292 (32.3%) of the cases were women. Although the unadjusted relative risk of death for females compared to males was higher in the younger than in the older patients, the excess risk for women at younger ages was explained by differences in comorbid diseases and clinical severity between younger men and women. Overall after multivariate adjustment women had a 32% higher mortality risk compared with men.
Conclusions: Women undergoing PCI after AMI, overall, have a higher risk of in-hospital mortality than men. The effect of gender does not vary across age after accounting for differences in clinical risk and comorbid illness.

Effect of Gender on In-Hospital Mortality by Age Group

	Overall	Age < 50	Age 50-59	Age 60-69	Age 70-79	Age >=80	Interaction p value
Number of cases	59,742	11,214	15,517	14,345	12,861	5,805	
Unadjusted Odds Ratio (95% Confidence Interval)	1.79 (1.64-1.94)	1.92 (1.27-2.89)	1.68 (1.31-2.15)	1.15 (0.95-1.39)	1.21 (1.05-1.40)	1.14 (0.96-1.36)	0.02
Adjusted Odds Ratio (95% Confidence Interval)	1.32 (1.19-1.46)	1.23 (0.79-1.92)	1.55 (1.18-2.02)	1.16 (0.93-1.43)	1.34 (1.14-1.58)	1.36 (1.1-1.67)	ns

11:15 a.m.

885-4 Disparities in the Treatment of Acute Myocardial Infarction: Underutilization of Evidence-Based Therapies for Patients With Non-ST-Segment Myocardial Infarction

Matthew T. Roe, Lori Parsons, Charles Pollack, John G. Canto, Hal V. Barron, Nathan Every, William Rogers, Eric D. Peterson, Duke Clinical Research Institute, Durham, NC

Background: While multiple observational studies have characterized the use of evidence-based therapies for patients with ST-segment elevation myocardial infarction (STEMI), the care of patients with non-ST-segment elevation MI (NSTEMI) has not been as well-described.
Methods: Treatments used for patients with acute MI from the National Registry of Myocardial Infarction (NRMI)-4 (June, 2000 - June, 2002) during the initial hospitalization were analyzed. Patients who were transferred-in from another hospital and those who were transferred-out were excluded. Acute (within 24 hours of presentation) and discharge care for "ideal" patients without contraindications to the given therapies were compared for patients with STEMI vs. NSTEMI.
Results: A total of 185,968 patients from 1,247 U.S. hospitals were included in the analysis. Approximately 71% of the patients presented with NSTEMI.
Conclusions: Despite higher-risk clinical characteristics, patients with NSTEMI are treated less aggressively than patients with STEMI. However, evidence-based therapies are underused for all patients with acute MI and in-hospital mortality rates are substantially higher than those seen in clinical trial populations.